General

Title

Childhood immunization status: percentage of children 2 years of age who had four diphtheria, tetanus, and acellular pertussis (DTaP); three polio (IPV); one measles, mumps, and rubella (MMR); three haemophilus influenza type B (HiB); three hepatitis B (HepB); one chicken pox (VZV); four pneumococcal conjugate (PCV); one hepatitis A (HepA); two or three rotavirus (RV); and two influenza (flu) vaccines by their second birthday.

Source(s)

National Committee for Quality Assurance (NCQA). HEDIS 2016: Healthcare Effectiveness Data and Information Set. Vol. 1, narrative. Washington (DC): National Committee for Quality Assurance (NCQA); 2015. various p.

National Committee for Quality Assurance (NCQA). HEDIS 2016: Healthcare Effectiveness Data and Information Set. Vol. 2, technical specifications for health plans. Washington (DC): National Committee for Quality Assurance (NCQA); 2015. various p.

Measure Domain

Primary Measure Domain

Clinical Quality Measures: Process

Secondary Measure Domain

Does not apply to this measure

Brief Abstract

Description

This measure is used to assess the percentage of children who turn two years of age during the measurement year who had four diphtheria, tetanus, and acellular pertussis (DTaP); three polio (IPV); one measles, mumps, and rubella (MMR); three haemophilus influenza type B (HiB); three hepatitis B (HepB); one chicken pox (VZV); four pneumococcal conjugate (PCV); one hepatitis A (HepA); two or three rotavirus (RV); and two influenza (flu) vaccines by their second birthday.

The Childhood Immunization Status (CIS) measure calculates a rate for each vaccine and nine separate

combination rates. This measure summary represents the overall rate (combination #10).

Note from the National Quality Measures Clearinghouse (NQMC): For this measure, there are both Administrative and Hybrid Specifications. This NQMC measure summary is based on the Administrative specification. Refer to the original measure documentation for details pertaining to the Hybrid specification.

Rationale

A basic method for prevention of illness is immunization. Childhood immunizations help prevent serious illnesses such as polio, tetanus and hepatitis. Vaccines are a proven way to help a child stay healthy and avoid the potentially harmful effects of childhood diseases like mumps and measles. Even preventing "mild" diseases saves hundreds of lost school days and work days, and millions of dollars.

This measure follows the Centers for Disease Control and Prevention (CDC) Advisory Committee on Immunization Practices (ACIP) guidelines for immunizations (Kroger et al., 2006).

Evidence for Rationale

Kroger AT, Atkinson WL, Marcuse EK, Pickering LK, Advisory Committee on Immunization Practices (ACIP) Centers for Disease. General recommendations on immunization: recommendations of the Advisory Committee on Immunization Practices (ACIP) [published errata appear in MMWR Morb Mortal Wkly Rep 2007 Mar 23;56(11):256]. MMWR Recomm Rep. 2006 Dec 1;55(RR-15):1-48. [202 references] PubMed

National Committee for Quality Assurance (NCQA). HEDIS 2016: Healthcare Effectiveness Data and Information Set. Vol. 1, narrative. Washington (DC): National Committee for Quality Assurance (NCQA); 2015. various p.

Primary Health Components

Immunization; diphtheria; tetanus; acellular pertussis; polio; measles; mumps; rubella; haemophilus influenza type B; hepatitis B; varicella zoster virus (chicken pox); pneumococcal conjugate; hepatitis A; rotavirus; influenza; children

Denominator Description

Children who turn two years of age during the measurement year (see the related "Denominator Inclusions/Exclusions" field)

Numerator Description

Children who had four diphtheria, tetanus, and acellular pertussis (DTaP) vaccinations; three polio (IPV) vaccinations; one measles, mumps, and rubella (MMR) vaccination; three haemophilus influenza type B (HiB) vaccinations; three hepatitis B (HepB) vaccinations; one chicken pox (VZV) vaccination; four pneumococcal conjugate (PCV) vaccinations; one hepatitis A (HepA) vaccination; two or three rotavirus (RV) vaccinations; and two influenza vaccinations by their second birthday (see the related "Numerator Inclusions/Exclusions" field)

Evidence Supporting the Measure

Type of Evidence Supporting the Criterion of Quality for the Measure

A clinical practice guideline or other peer-reviewed synthesis of the clinical research evidence

A formal consensus procedure, involving experts in relevant clinical, methodological, public health and organizational sciences

Additional Information Supporting Need for the Measure

- Childhood vaccines protect children from a number of serious and potentially life-threatening diseases such as diphtheria, measles, meningitis, polio, tetanus and whooping cough, at a time in their lives when they are most vulnerable to disease (Mayo Clinic, 2014; Institute of Medicine [IOM], 2013). Approximately 300 children in the United States (U.S.) die each year from vaccine-preventable diseases (U.S. Department of Health and Human Services [DHHS] & Office of Disease Prevention and Health Promotion [ODPHP], 2013).
- It is estimated that for each group of children vaccinated, 14 million cases of disease are prevented, direct health care costs are reduced by $9.9 billion and indirect costs are reduced by $33.4 billion (DHHS & ODPHP, 2013).
- Vaccines are considered one of the most successful and cost-effective public health interventions and are responsible for dramatically reducing pediatric morbidity and mortality in the U.S. (DHHS & ODPHP, 2013; Centers for Disease Control and Prevention [CDC], 2012).
- Although U.S. childhood immunization rates are generally high, some areas remain vulnerable to outbreaks of infection, such as measles (IOM, 2013). In 2013, 159 measles case were reported in the U.S. – 37 percent in children younger than 5 years (Malani, 2013).
- Immunizations are essential for disease prevention in the U.S. and are a critical aspect of preventive care for children. Vaccination coverage must be maintained in order to prevent a resurgence of vaccine-preventable diseases (Diekema, 2012).

Evidence for Additional Information Supporting Need for the Measure

Centers for Disease Control and Prevention (CDC). Protect your child at every age. [internet]. Atlanta (GA): Centers for Disease Control and Prevention (CDC); 2012 [accessed 2014 Jun 19].

Diekema DS. Improving childhood vaccination rates. N Engl J Med. 2012 Feb 2;366(5):391-3. PubMed

Institute of Medicine (IOM). The childhood immunization schedule and safety: stakeholder concerns, scientific evidence, and future studies. Report brief. [internet]. Washington (DC): Institute of Medicine (IOM); 2013 Jan [accessed 2014 Jun 19].

Malani P. Vaccination rates for US children remain generally high, but measles outbreaks underscore shortfalls in some regions. [internet]. Chicago (IL): American Medical Association (AMA); 2013 Sep 16.

Mayo Clinic. Infant and toddler health. Childhood vaccines: tough questions, straight answers. Do vaccines cause autism? Is it OK to skip certain vaccines? Get the facts on these and other common questions. [internet]. Scottsdale (AZ): Mayo Clinic; 2014 [accessed 2014 Jun 19].

National Committee for Quality Assurance (NCQA). The state of health care quality 2015. Washington (DC): National Committee for Quality Assurance (NCQA); 2015. 205 p.

U.S. Department of Health and Human Services (DHHS), Office of Disease Prevention and Health Promotion (ODPHP). Healthy People 2020: immunization and infectious diseases. [internet]. Washington (DC): U.S. Department of Health and Human Services (DHHS); 2013 [accessed 2014 Jun 19].

Extent of Measure Testing

All HEDIS measures undergo systematic assessment of face validity with review by measurement advisory panels, expert panels, a formal public comment process and approval by the National Committee for Quality Assurance's (NCQA's) Committee on Performance Measurement and Board of Directors. Where applicable, measures also are assessed for construct validity using the Pearson correlation test. All measures undergo formal reliability testing of the performance measure score using beta-binomial statistical analysis.

Evidence for Extent of Measure Testing

Rehm B. (Assistant Vice President, Performance Measurement, National Committee for Quality Assurance, Washington, DC). Personal communication. 2015 Mar 16. 1 p.

State of Use of the Measure

State of Use

Current routine use

Current Use

not defined yet

Application of the Measure in its Current Use

Measurement Setting

Ambulatory/Office-based Care

Managed Care Plans

Professionals Involved in Delivery of Health Services

not defined yet

Least Aggregated Level of Services Delivery Addressed

Single Health Care Delivery or Public Health Organizations

Statement of Acceptable Minimum Sample Size

Specified

Target Population Age

Children who turned two years of age during the measurement year

Target Population Gender

Either male or female

National Strategy for Quality Improvement in Health Care

National Quality Strategy Aim

Better Care

National Quality Strategy Priority

Health and Well-being of Communities
Prevention and Treatment of Leading Causes of Mortality

Institute of Medicine (IOM) National Health Care Quality Report Categories

IOM Care Need

Staying Healthy

IOM Domain

Effectiveness

Data Collection for the Measure

Case Finding Period

The measurement year

Denominator Sampling Frame

Enrollees or beneficiaries

Denominator (Index) Event or Characteristic

Patient/Individual (Consumer) Characteristic

Denominator Time Window

not defined yet

Denominator Inclusions/Exclusions

Inclusions

Children who turn two years of age during the measurement year

Note:

> Children must have been continuously enrolled for 12 months prior to the child's second birthday.
> *Allowable Gap*: No more than one gap in enrollment of up to 45 days during the 12 months prior to the child's second birthday. To determine continuous enrollment for a Medicaid beneficiary for whom enrollment is verified monthly, the member may not have more than a 1-month gap in coverage.

Exclusions

Exclude children who had a contraindication for a specific vaccine from the denominator for all antigen rates and the combination rates. The denominator for all rates must be the same. (*Optional*)
Exclude contraindicated children only if administrative data do not indicate that the contraindicated immunization was rendered in its entirety. (*Optional*)
Any of the following on or before the member's second birthday meet optional exclusion criteria:

- *Any Particular Vaccine*: Anaphylactic reaction to the vaccine or its components (Anaphylactic Reaction Due To Vaccination Value Set)
- *Diphtheria, Tetanus, and Acellular Pertussis (DTaP)*: Encephalopathy (Encephalopathy Due To Vaccination Value Set) *with* a vaccine adverse-effect code (Vaccine Causing Adverse Effect Value Set)
- *Measles, Mumps, and Rubella (MMR), Chicken Pox (VZV), and Influenza*: Immunodeficiency (Disorders of the Immune System Value Set)
- *MMR, VZV, and Influenza*: HIV (HIV Value Set)
- *MMR, VZV, and Influenza*: Lymphoreticular cancer, multiple myeloma or leukemia (Malignant Neoplasm of Lymphatic Tissue Value Set)
- *MMR, VZV, and Influenza*: Anaphylactic reaction to neomycin
- *Polio (IPV)*: Anaphylactic reaction to streptomycin, polymyxin B or neomycin
- *Hepatitis B*: Anaphylactic reaction to common baker's yeast

Value Set Information

Measure specifications reference value sets that must be used for HEDIS reporting. A value set is the complete set of codes used to identify the service(s) or condition(s) included in the measure. Refer to the NCQA Web site to purchase HEDIS Volume 2, which includes the Value Set Directory.

Exclusions/Exceptions

not defined yet

Numerator Inclusions/Exclusions

Inclusions

Children who had four diphtheria, tetanus, and acellular pertussis (DTaP); three polio (IPV); one measles, mumps, and rubella (MMR); three haemophilus influenza type B (HiB); three hepatitis B (HepB); one chicken pox (VZV); four pneumococcal conjugate (PCV); one hepatitis A (HepA); two or three rotavirus (RV); and two influenza vaccinations by their second birthday

For MMR, HepB, VZV and HepA, count any of the following:

Evidence of the antigen or combination vaccine, *or*
Documented history of the illness, *or*
A seropositive test result for each antigen

For DTaP, IPV, HiB, PCV, RV and influenza, count *only*:

Evidence of the antigen or combination vaccine

For combination vaccinations that require more than one antigen (i.e., DTaP and MMR), the organization must find evidence of all the antigens.

DTaP: At least four DTaP vaccinations (DTaP Vaccine Administered Value Set), with different dates of service on or before the child's second birthday.

IPV: At least three IPV vaccinations (Inactivated Polio Vaccine [IPV] Administered Value Set), with different dates of service on or before the child's second birthday.

MMR: Any of the following on or before the child's second birthday meet criteria:

- At least one MMR vaccination (MMR Vaccine Administered Value Set).
- At least one measles and rubella vaccination (Measles/Rubella Vaccine Administered Value Set) *and* at least one mumps vaccination *or* history of the illness (Mumps Vaccine Administered Value Set; Mumps Value Set) on the same date of service or on different dates of service.
- At least one measles vaccination *or* history of the illness (Measles Vaccine Administered Value Set; Measles Value Set) *and* at least one mumps vaccination *or* history of the illness (Mumps Vaccine Administered Value Set; Mumps Value Set) *and* at least one rubella vaccination *or* history of the illness (Rubella Vaccine Administered Value Set; Rubella Value Set) on the same date of service or on different dates of service.

HiB: At least three HiB vaccinations (Haemophilis Influenzae Type B [HiB] Vaccine Administered Value Set), with different dates of service on or before the child's second birthday.

HepB: Any of the following on or before the child's second birthday meet criteria:

- At least three hepatitis B vaccination (Hepatitis B Vaccine Administered Value Set), with different dates of service.
    - One of the three vaccinations can be a newborn hepatitis B vaccination (Newborn Hepatitis B Vaccine Administered Value Set) during the eight-day period that begins on the date of birth and ends seven days after the date of birth. For example, if the member's date of birth is December 1, the newborn hepatitis B vaccination must be on or between December 1 and December 8.
- History of hepatitis illness (Hepatitis B Value Set).

VZV: Either of the following on or before the child's second birthday meet criteria:

- At least one VZV vaccination (Varicella Zoster [VZV] Vaccine Administered Value Set), with a date of service on or before the child's second birthday.
- History of varicella zoster (e.g., chicken pox) illness (Varicella Zoster Value Set).

PCV: At least four pneumococcal conjugate vaccinations (Pneumococcal Conjugate Vaccine Administered Value Set), with different dates of service on or before the child's second birthday.

HepA: Either of the following on or before the child's second birthday meet criteria:

- At least one HepA vaccination (Hepatitis A Vaccine Administered Value Set), with a date of service on or before the child's second birthday.
- History of HepA illness (Hepatitis A Value Set).

RV: Any of the following on or before the child's second birthday meet criteria:

- At least two doses of the two-dose rotavirus vaccine (Rotavirus Vaccine [2 Dose Schedule] Administered Value Set) on different dates of service.
- At least three doses of the three-dose rotavirus vaccine (Rotavirus Vaccine [3 Dose Schedule] Administered Value Set) on different dates of service.
- At least one dose of the two-dose rotavirus vaccine (Rotavirus Vaccine [2 Dose Schedule]

Administered Value Set) *and* at least two doses of the three-dose rotavirus vaccine (Rotavirus Vaccine [3 Dose Schedule] Administered Value Set), all on different dates of service.

Influenza: At least two influenza vaccinations (Influenza Vaccine Administered Value Set), with different dates of service on or before the child's second birthday.

Exclusions

DTaP, IPV, HiB, PCV and RV: Do not count any vaccination administered prior to 42 days after birth.
Influenza: Do not count a vaccination administered prior to six months (180 days) after birth.

Value Set Information
Measure specifications reference value sets that must be used for HEDIS reporting. A value set is the complete set of codes used to identify the service(s) or condition(s) included in the measure. Refer to the NCQA Web site to purchase HEDIS Volume 2, which includes the Value Set Directory.

Numerator Search Strategy

Fixed time period or point in time

Data Source

Administrative clinical data

Paper medical record

Type of Health State

Does not apply to this measure

Instruments Used and/or Associated with the Measure

Unspecified

Computation of the Measure

Measure Specifies Disaggregation

Measure is disaggregated into categories based on different definitions of the denominator and/or numerator

Basis for Disaggregation

This measure is disaggregated based on different definitions of the numerator. This measure calculates a rate for each vaccine and nine separate combination rates.

Vaccines:

Diphtheria, tetanus, and acellular pertussis (DTaP)
Polio (IPV)
Measles, mumps, and rubella (MMR)

H influenza type B (HiB)
Hepatitis B (HepB)
Chicken pox (VZV)
Pneumococcal conjugate (PCV)
Hepatitis A (HepA)
Rotavirus (RV)
Influenza

Combination Rates:

Combination 2: DTaP, IPV, MMR, HiB, HepB, VZV
Combination 3: DTaP, IPV, MMR, HiB, HepB, VZV, PCV
Combination 4: DTaP, IPV, MMR, HiB, HepB, VZV, PCV, HepA
Combination 5: DTaP, IPV, MMR, HiB, HepB, VZV, PCV, RV
Combination 6: DTaP, IPV, MMR, HiB, HepB, VZV, PCV, Influenza
Combination 7: DTaP, IPV, MMR, HiB, HepB, VZV, PCV, HepA, RV
Combination 8: DTaP, IPV, MMR, HiB, HepB, VZV, PCV, HepA, Influenza
Combination 9: DTaP, IPV, MMR, HiB, HepB, VZV, PCV, RV, Influenza
Combination 10: DTaP, IPV, MMR, HiB, HepB, VZV, PCV, HepA, RV, Influenza

Scoring

Rate/Proportion

Interpretation of Score

Desired value is a higher score

Allowance for Patient or Population Factors

not defined yet

Description of Allowance for Patient or Population Factors

This measure requires that separate rates be reported for commercial and Medicaid product lines.

Standard of Comparison

not defined yet

Identifying Information

Original Title

Childhood immunization status (CIS).

Measure Collection Name

HEDIS 2016: Health Plan Collection

Measure Set Name

Effectiveness of Care

Measure Subset Name

Prevention and Screening

Submitter

National Committee for Quality Assurance - Health Care Accreditation Organization

Developer

National Committee for Quality Assurance - Health Care Accreditation Organization

Funding Source(s)

Unspecified

Composition of the Group that Developed the Measure

National Committee for Quality Assurance's (NCQA's) Measurement Advisory Panels (MAPs) are composed of clinical and research experts with an understanding of quality performance measurement in the particular clinical content areas.

Financial Disclosures/Other Potential Conflicts of Interest

In order to fulfill National Committee for Quality Assurance's (NCQA's) mission and vision of improving health care quality through measurement, transparency and accountability, all participants in NCQA's expert panels are required to disclose potential conflicts of interest prior to their participation. The goal of this Conflict Policy is to ensure that decisions which impact development of NCQA's products and services are made as objectively as possible, without improper bias or influence.

Endorser

National Quality Forum - None

NQF Number

not defined yet

Date of Endorsement

2014 Dec 23

Measure Initiative(s)

Physician Quality Reporting System

Adaptation

This measure was not adapted from another source.

Date of Most Current Version in NQMC

2015 Oct

Measure Maintenance

Unspecified

Date of Next Anticipated Revision

Unspecified

Measure Status

This is the current release of the measure.

This measure updates previous versions:

National Committee for Quality Assurance (NCQA). HEDIS 2015: Healthcare Effectiveness Data and Information Set. Vol. 1, narrative. Washington (DC): National Committee for Quality Assurance (NCQA); 2014. various p.
National Committee for Quality Assurance (NCQA). HEDIS 2015: Healthcare Effectiveness Data and Information Set. Vol. 2, technical specifications for health plans. Washington (DC): National Committee for Quality Assurance (NCQA); 2014. various p.

Measure Availability

Source available for purchase from the National Committee for Quality Measurement (NCQA) Web site .

For more information, contact NCQA at 1100 13th Street, NW, Suite 1000, Washington, DC 20005; Phone: 202-955-3500; Fax: 202-955-3599; Web site: www.ncqa.org .

Companion Documents

The following are available:

- National Committee for Quality Assurance (NCQA). The state of health care quality 2015. Washington (DC): National Committee for Quality Assurance (NCQA); 2015 Oct. 205 p.
- National Committee for Quality Assurance (NCQA). HEDIS 2016: Healthcare Effectiveness Data and Information Set. Vol. 2, technical update. Washington (DC): National Committee for Quality Assurance (NCQA); 2015 Oct 1. 12 p.

For more information, contact the National Committee for Quality Assurance (NCQA) at 1100 13th Street, NW, Suite 1000, Washington, DC 20005; Phone: 202-955-3500; Fax: 202-955-3599; Web site: www.ncqa.org .

NQMC Status

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Production

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